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FIRST SPECIAL SESSION AND 30TH REGULAR SESSION OF THE GENERAL CONFERENCE OF THE INTERNATIONAL ATOMIC ENERGY AGENCY

HEARING

BEFORE THE

SUBCOMMITTEE ON
ENERGY, NUCLEAR PROLIFERATION, AND
GOVERNMENT PROCESSES

OF THE

COMMITTEE ON
GOVERNMENTAL AFFAIRS
UNITED STATES SENATE

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CONTENTS

Page

Opening statement of Senator Cochran 1

WITNESSES

TUESDAY, NOVEMBER 18, 1986

John S. Herrington, Secretary, U.S. Department of Energy 2
Richard T. Kennedy, Ambassador at Large and Special Advisor to the Secretary of State on Nonproliferation and Nuclear Energy Affairs, U.S. Department of State 8

ALPHABETICAL LIST OF WITNESSES

Herrington, John S.:
Testimony 2
Prepared statement 19
Kennedy, Richard T.:
Testimony 8
Prepared statement with an attachment 33

ADDITIONAL MATERIAL SUBMITTED FOR THE RECORD

"Toward Nuclear-Energy Safety." by Walter Wallman, New York Times, November 7, 1986 6
Prepared statements of witnesses 19
Statement of Hans Blix, Director General of the International Atomic Energy Agency 44

FIRST SPECIAL SESSION AND 30TH REGULAR SESSION OF THE GENERAL CONFERENCE OF THE INTERNATIONAL ATOMIC ENERGY AGENCY

TUESDAY, NOVEMBER 18, 1986

U.S. SENATE,
SUBCOMMITTEE ON ENERGY, NUCLEAR
PROLIFERATION, AND GOVERNMENT PROCESSES,
COMMITTEE ON GOVERNMENTAL AFFAIRS,
Washington, DC.

The subcommittee met at 10:01 a.m. in room SD-342, Dirksen Senate Office Building, Hon. Thad Cochran (chairman of the subcommittee) presiding.

Present: Senator Cochran.

OPENING STATEMENT OF SENATOR COCHRAN

Senator COCHRAN. The subcommittee will please come to order. This morning, the Governmental Affairs Subcommittee on Energy, Nuclear Proliferation, and Government Processes holds this hearing to review the conferences which have been held in recent months in the effort, through the International Atomic Energy Agency, to respond in a meaningful way and to try to learn from the Chernobyl accident.

Last April when this accident occurred, it underlined the heavy safety responsibilities that go with nuclear power. The widespread concern raised by the accident produced an immediate and intense international movement to improve nuclear safety cooperation through the International Atomic Energy Agency.

Within 6 months, this effort has produced some very encouraging results. In August, nearly 700 persons from 62 countries convened in Vienna to receive a report from the Soviet Union on the accident. This report proved to be surprisingly candid and detailed. This meeting was followed by three conferences which are the subject of this hearing.

From September 24 through 26, the first special session in the history of the IAEA General Conference approved two international conventions on the mitigation of nuclear accidents. This was the first formal international response to Chernobyl.

The next week, the 30th regular session of the general conference debated the budget to implement the IAEA Program.

From November 3 to 7, an Expert Working Group on International Cooperation in Nuclear Safety met in Vienna to discuss

long-term technical measures to improve international nuclear safety.

Appearing before our subcommittee today are two persons who were intimately involved in these three conferences. Secretary of Energy John S. Herrington led the U.S. delegation to the two sessions of the general conference, and he will review and assess those meetings. Ambassador Richard T. Kennedy, the U.S. representative to the IAEA Board of Governors, will discuss the Expert Working Group's activities, as well as the long-term outlook for the international nuclear safety regime.

We want to welcome Secretary Herrington and Ambassador Kennedy. Secretary Herrington is our lead witness this morning.

We appreciate very much your cooperation with the subcommittee. We have a copy of your statement,[1] and it will be included in its entirety in the record.

We encourage you to make any summary comments or other comments that you may wish. You may proceed.

TESTIMONY OF JOHN S. HERRINGTON, SECRETARY, U.S. DEPARTMENT OF ENERGY

Secretary HERRINGTON. Thank you, Mr. Chairman. I appreciate you submitting my full statement for the record. It is too lengthy to read. I would like to make a couple of remarks at the outset on some general impressions, and than I would be happy to answer questions, if you have any.

I think we have to start with the proposition that nuclear power is a vital component of the world's energy security. I think that is something we have to face at the outset. The United States has the most advanced nuclear technology in the world, and we need to share our technology and our knowledge with other countries so that superior safety standards and design techniques are incorporated in other plants around the world. The United States must do what it can so that the world will never again see an accident such as Chernobyl.

The Department of Energy, the Nuclear Regulatory Commission and the U.S. nuclear industry agree that the issue of nuclear safety is the most important issue to be faced today in the design and the operation of all of our nuclear powerplants in order to restore public confidence and show the public that this can be a clean, cost-effective, efficient type of electricity generation.

I would like to say at the outset the commercial plants in the United States run by utilities in the private sector are not susceptible to accidents similar to that at Chernobyl. The technical data is in on that. The deisgn of nuclear power stations in the United States, and most of the world, for that matter, is far superior to that of the Soviet plants.

During discussions that I had with the Soviets in Vienna on the two Cuban reactors that they are building, we received an agreement from them to provide us with information on the structural details of those Cuban reactors; that is, who is building them; type of design characteristics; type of safety measures being installed in

[1] See p. 19 for Secretary Herrington's prepared statement.

these plants. That information should be forthcoming, and we will continue to ask for it.

Although the Soviets did provide, as you said, considerable information at the meeting of the IAEA in August on the Chernobyl accident, there are still many, and I repeat many, unanswered questions which they have said they will provide. There are technical questions that were submitted by the conference to them, and we hope in the coming months to have those questions answered.

The two international conventions that I signed in Vienna on behalf of the United States are, in fact, a positive step toward regaining the confidence of citizens in nuclear power. One convention binds each signatory to early notification in the event of an incident. That is new progress.

The second convention responds to requests for emergency technical assistance in the event of an incident.

The IAEA is by far the largest international organization, with 113 members, that has a significant nuclear safety program. In response to the Chernobyl accident, the agency has expanded its nuclear safety program. Although safety has been considered largely a national issue up to this point, I think one of the things that we have all learned from Chernobyl is that it is not an international problem and we, all of us, no matter from what country, must be involved in international design and safety standards.

Increased safety measures are what we need to look to, and we need to look to the IAEA for programs and training and safety standards on an international basis.

I would like to make some general comments from my own impressions: although we did, in fact, sign the two conventions that we have described this morning, they are far too little to get the job done; there could be more, and they need to be strengthened.

We need a forum for multilateral cooperation on technical issues about nuclear safety, and the IAEA is the proper forum in my estimation. It has the most members, it is the largest; it has the body and the structure that we should be able to use for this purpose.

But the IAEA needs to focus its efforts. It should not be a political forum. Resolutions about Israel and South Africa are not out of place. The IAEA can serve a useful purpose, but to do so, it must be stronger in its pursuit of nuclear safety, and it must become more effective in urging countries like the Soviet Union to improve their nuclear safety practices, and it must be able to deal with the compensation issues, which nations have been unable to deal with.

Compensation, to me, is one of the areas where we could make some real progress. There was damage done by the Chernobyl accident, but they have not been able to deal with compensation. It is too controversial. They have been able to make compensation within East bloc countries but not to countries on the outside.

The IAEA can form the basis of a comprehensive safety program and one that we would like to see developed.

Thank you, Mr. Chairman.

Senator COCHRAN. Thank you, Mr. Secretary. We appreciate having the benefit of your comments and the detailed statement which we have put in the record which discusses these two conferences and the conventions which you signed in behalf of our Government.

We hope that these conventions will never come into play, because they are designed to be operative in the event of a future disaster, and we hope that there won't be any future disasters.

What, in your judgment, is being done now that gives hope to the world that we have learned enough from Chernobyl to prevent there being another Chernobyl?

Secretary HERRINGTON. I think in this country, certainly, there is an increased awareness and emphasis on safety. Safety is the No. 1 issue in this country today; there is no question about it. There is a meeting in town today of about 2,000 people from the nuclear industry.

In talking with them and meeting with them, I can tell you, safety is the No. 1 issue on their minds.

We can talk about licensing reform in this country and standardized plant design. We could talk about a lot of things. They aren't going to get the public confidence back until the public is sure that we can deal with safety.

I had occasion before the IAEA meeting to go to Finland and visit the Lovisa reactor, which is a Soviet reactor, but they have taken that reactor and put German instrumentation in it and put a Westinghouse cover over it, and they have raised it to Western standards. That type of a program, I think, can go a long way to keep us from having another Chernobyl accident.

Senator COCHRAN. We found out in Chernobyl that, as someone said, a nuclear accident anywhere is a nuclear accident everywhere. The impact, the fallout, the damage can cross borders. For this reason, there has been some real concern raised about the construction in Cuba of reactors at Cienfuegos. You mentioned that and said in your statement that you had called upon the Soviet Union to provide information about the design and safety standards and the effort that is being made in connection with those powerplants to ensure that they are safe and that we won't see a repeat of Chernobyl there in Cuba which could result in very serious damage to the citizens of the United States.

When do you expect to have that information from the Soviet Union, and do you think there is reason to believe that there is going to be a very strong effort made to ensure safety in connection with that plant?

Secretary HERRINGTON. I am not convinced of the general statement that there will be a strong effort. I think that we can ensure that there is a strong effort by reemphasizing to the Soviets the need for safety. There was a firm promise by the Soviet Union in Vienna to provide that information to us, and it is reasonable information, and as a neighbor of Cuba, we have a right to know.

There are many questions such as: What type of concrete is going into it? How much steel will be in the containment? Is it designed to withstand hurricanes, which are frequent in that area? What types of people are building it? Are they unskilled labor or skilled labor? Basic safety questions. Is there a fire control system, Is there a rod safety system?

I think any country should have the right to know that either through the IAEA or in an international forum if it is a neighbor to a country that is using nuclear power. I think that information

will be forthcoming. It is not; we do not have it yet. We will continue to press for it.

Senator COCHRAN. One of the things that the International Atomic Energy Agency does is to monitor the compliance with safeguards by countries who do not have nuclear weapons and who, in the opinion of the world community, shouldn't have nuclear weapons. In this connection, in Cuba, will it be our Government's position that we will help ensure that there is a strong effort by the IAEA or our Government through the use of its diplomatic resources, to ensure compliance with safeguards that would prohibit or prevent the diversion of nuclear fuels to nuclear weapons production?

This is another concern, I think, that goes along with nuclear safety.

Secretary HERRINGTON. Mr. Chairman, I don't believe that is a negotiable point. I think we must insist, whether it is through the IAEA or any other way possible, that the concerns you voiced are satisfied.

We need to make sure that those safeguards are in place, not only in Cuba. We must continue to press on the nonproliferation front with other countries that have not signed the Nonproliferation Treaty.

Senator COCHRAN. There are additional undertakings, I am sure, that will be made through the IAEA to arrive at some international standards for safety. Right now, there are standards that have been developed by IAEA, but those are not mandatory; compliance is not mandatory; there are no provisions under international agreements for onsite inspections if the host country or the country where the powerplant is situated objects to an inspection.

Do you see our Government pushing for any kind of international safety regime that would include standards and mandatory inspections and onsite inspections, and are we willing to permit such inspections to take place here in the United States?

Secretary HERRINGTON. I think you have to separate mandatory standards and mandatory inspections from reasonable engineering standards. Let me try to explain, if I could. In the United States the NRC conducts these studies and inspections on a far higher level than any country in the world, from what I have seen. The NRC is primarily responsible in this country for enforcing American nuclear safety.

If we were to set up some sort of international standards or international inspection agency under the IAEA or any other way, all it would do to us is lower our standard, because you could not bring everyone up to the U.S. standard. That is not to say that we should not insist on engineering and technical and safety standards in all reactors in the world. I think those countries such as France, Japan, West Germany, and the United States, those countries that have very high standards, should continue to monitor those standards and enforce them in their own country.

I don't want to push that responsibility off onto the IAEA. But we can use the IAEA to set minimum safety guidelines in the world and to work toward bringing Third World countries up to those minimum guidelines. Many of them are not, at this point.

Would we accept international inspections? We not only would accept them; we are doing much of the training these days for the OSART [Occupational Safety Review Team] teams, and we are trying to share our technology in order to improve the world standard.

We plan on inviting an OSART team to this country, probably in early 1988, and working with them to develop that program. What we need to do is improve the safety standards in countries that have not reached our level.

Senator COCHRAN. Mr. Secretary, I had brought to my attention a copy of an article written for the New York Times by Walter Wallmann, who is West Germany's Minister of Environment, Protection of Nature, and Nuclear Reactor Safety, a post created, it says, in the wake of Chernobyl.

In this article, which was in the New York Times on November 7, he says:

> First, public safety must have absolute priority. It must have precedence over any consideration of profit. Second, all safety recommendations by the International Atomic Energy Agency must involve the latest technology and must be compulsory. Third, all nations must submit their nuclear plants to safety review by the agency. Finally, the principal that the polluter pays must be applied if compensation for damages is sought. Financial responsibilities for transborder damages must be born by the country that causes an accident.

It sounds like, to me, that he is saying some of the same things that you are saying, and I am going to put a copy of this in the record at this point to show that there are others around the world who have the same view about the fact that the compensation issue has to be addressed and must be addressed.

[The article referred to follows:]

[From the New York Times, Nov. 7, 1986]

TOWARD NUCLEAR-ENERGY SAFETY

(By Walter Wallmann)

BONN.—More than six months after the accident at the Soviet Union's Chernobyl atomic power station, many Europeans remain deeply frightened about nuclear energy.

All across Eastern and Western Europe, citizens are asking political leaders and scientists hard questions. Is it morally justifiable to continue to use nuclear energy after Chernobyl? Are the risks and dangers that Chernobyl revealed avoidable? Will governments agree to put safety above all other considerations—and can a safety-first policy be enforced?

Such questions have been especially acute in the Federal Republic of Germany. Their intensity reflects our close proximity to several major national nuclear power programs in central Europe.

Since Bonn remains convinced that nuclear power will continue to be an important source of energy for social and economic development both at home and abroad, the Government has reaffirmed its longstanding conviction that the greatest possible safety guarantees must be provided. Nuclear power will help bridge the gap between energy supply and demand until alternative sources of energy are ready.

As for practical steps, since Chernobyl, West Germany has taken strong measures to improve the safety of our nuclear power program. Comprehensive safety checks have been ordered at all nuclear plants. A new law has been drafted to make the federal Government responsible for monitoring radioactivity and shielding the public from radiation.

Chernobyl's most important—ethical—lesson is that nations cannot ignore the consequences of nuclear problems beyond their borders and that national interest must yield to a broader concern for the safety and well-being of everyone on this planet.

Industrial nations carry a special responsibility. Since the world's population is growing dramatically, particularly in the developing nations, the great challenge of our era is to provide a dignified existence for everyone. Thus, when an industrialized nation weighs the need for continuing and increasing its nuclear energy, its overriding concern should not be the growth rate of its own energy needs but rather the fact that worldwide energy needs are markedly growing as developing nations seek to provide for expanding populations.

Critics of nuclear energy say that industrialized nations should return exclusively to fossil fuel for energy. But such action would hardly be fair to developing countries. The reason is that by today's best estimates fossil-fuel reserves are available for only several more generations. It would not be ethical for the economically strong to intensify their use of fossil fuels, thus hastening their depletion and depriving third world nations of a readily available energy source crucial to their hopes for development.

Nor it is ethical for industrialized nations to intensify the use of fossil fuels when such action carries a risk of world ecological catastrophe.

Since nuclear power plays a role in meeting development needs, its safety must be guaranteed. and if the fear generated by Chernobyl is to be replaced by public confidence in nuclear energy, proposals West Germany recently put before the international community must gain acceptance.

First, public safety must have absolute priority: it must have precedence over any consideration of profit. Second, all safety recommendations. by the International Atomic Energy Agency must involve the latest technology and must be compulsory. Third, all nations must submit their nuclear plants to safety review by the agency. Finally, the principle that the "polluter pays" must be applied when compensation for damages is sought. Financial responsibility for trans-border damages must be borne by the country that causes an accident.

Chernobyl has made possible the beginnings of international cooperation in providing nuclear safety. If we all control the risks—they are indeed controllable—and if all countries make it clear that they have nothing to hide when it comes to the safety of their plants, nuclear energy can continue to be a safe, important source of energy.

Senator COCHRAN. Do you see that being the subject of future conferences such as the ones you recently attended?

Secretary HERRINGTON. Mr. Chairman, we had extensive discussions with the West Germans when we were there, and these issues were discussed. I could not agree more with what you have just said and the content of that particular article.

The credibility of an organization such as the IAEA is going to depend not only on its ability to develop minimum safety guidelines for the global nuclear community, but to deal with the thorny issues such as compensation. This is when the organization begins to show its credibility.

There is no doubt in my mind, and I think you would probably agree, that if the Chernobyl accident had happened in Canada or in the United States, the IAEA and the country members would be screaming for compensation to other countries, because we are the United States and we are historically viewed as the leader in this.

Since it happened in the Soviet Union, you hear no cries for compensation. Yet I visited Sweden and looked at some of the damage; I visited Finland and looked at some of the damage that took place there; and I visited Denmark. There has been serious damage done by this particular accident yet nothing is being said about the compensation, because it is generally agreed that the Soviets will not pay compensation. Their reaction is, "Who is going to pay us?"

That is not a very reasonable reaction on the issue of compensation. That issue needs to be addressed on a credible basis.

Senator COCHRAN. I think your presence here today and this discussion has been very helpful to the subcommittee, and we appreciate your being here and testifying at this hearing. I know that we

are going to continue to monitor this situation and try to contribute to a better understanding of what the issues are and what our options are in trying to come to some agreement here in Congress as to whether legislation is needed or efforts are needed to try to reach international agreements and additional conventions or treaties on these subjects.

We thank you very much for your cooperation and your testimony.

Secretary HERRINGTON. Thank you, Mr. Chairman.

Senator COCHRAN. Thank you, Mr. Secretary.

Our next witness this morning is Ambassador Richard Kennedy. Mr. Kennedy is the Ambassador at Large and the representative of the United States to the Board of Governors of the International Atomic Energy Agency.

We have a prepared statement from Ambassador Kennedy [1] which we will include in the record and invite him to make any additional comments or provide the subcommittee with any information he chooses on the subject of today's hearing. We thank you for being here, Mr. Ambassador, and we encourage you to proceed in any way you wish.

TESTIMONY OF RICHARD T. KENNEDY, AMBASSADOR AT LARGE AND SPECIAL ADVISOR TO THE SECRETARY OF STATE ON NONPROLIFERATION AND NUCLEAR ENERGY AFFAIRS, U.S. DEPARTMENT OF STATE

Ambassador KENNEDY. Thank you very much, Mr. Chairman. As always, it is a privilege and a pleasure to appear before the subcommittee. And particularly so in having the opportunity to discuss the number of meetings and activities which the IAEA has been engaged in over the recent months and will continue to be engaged in on into the future.

As a member of the Board of Governors, I would like very much to express appreciation of the administration and, indeed, all of my colleagues at the IAEA for your interest and support which you have consistently given to the organization. It has been most helpful. As I last testified before the committee, there have been a number of significant events which have occurred which you mentioned and which Secretary Herrington has referred to at some length.

The postaccident experts meeting in August on Chernobyl was a particularly interesting meeting. Let me just say on that I might be prepared to answer any questions, of course. Let me just say that the Soviets were, indeed, forthcoming, but as Secretary Herrington noted, there were a number of questions not yet addressed.

We look forward to hearing from them. We are raising with them on every occasion in which we meet with them the need to obtain the information where those answers to those questions would, in fact, be helpful to us. We expect to hear from them. We have not yet received any of that further information.

The results of the meetings in September were also noteworthy, and I won't reiterate what Secretary Herrington has already said.

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[1] See p. 33 for Ambassador Kennedy's prepared statement.

Let me just note that we, in connection with the two conventions, as you rightly pointed out, these are conventions which represented remarkable achievements.

In a period of some 4 weeks, the international community was able to coalesce under the leadership of the agency, and its secretariat came together and produced conventions which, in fact, were open for signature and were then signed by some 51 states at the September meeting.

In terms of international cooperation, that must be a near record for achievement. I think it represents, indeed, an evidence of the kind of cooperation which does occur on a regular basis within the agency. Let me just note that in that connection, I just observed a statement from the Soviet press noting that they had, in fact, ratified those two conventions but did so with reservation.

On the question of the convention on notification, the U.S.S.R. indicates that it will not consider itself bound by the convention in respects to the question of submitting to a possible dispute over the question to arbitration or to the international court.

Otherwise, the Soviet Union seems prepared to act upon these conventions in full. Both of them will be submitted to the Senate for its consideration in the next session. Nuclear safety, Mr. Chairman, has obviously an enormous amount of interest since the accident. In particular, I think I would like to mention the OSART teams which Secretary Herrington earlier referred to.

The program is some 3 years old, and it provides assistance to both developing countries and to more advanced countries by dealing with the original member state and giving opportunity for a comprehensive review of a particular nuclear facility and together, as a result of that review, recommendations for the safety operation of that facility as seen by the team.

Also, there is an additional benefit in the sence that qualified personnel from developing countries are included as members of the review teams, and thus, they are given the opportunity to receive valuable training in how to conduct such safety reviews which will obviously enhance their ability to effect such reviews within their own country in the event that they have nuclear safety programs developing there.

I would note that such visits occur only at the request of the member states, and the agency's role, obviously, is purely an advisory one.

Currently, there are 5 or 6 such visits that occur annually, but it is hoped, and indeed, expected, that the number will probably double in the coming year to around perhaps as many as 12.

There is strong support throughout the membership of the agency for the expansion of this OSART Program.

This month, there was another meeting of nuclear safety experts. An extensive list, and I do mean extensive list, of suggested safety activities which the agency might undertake was considered by this group of experts. These ideas, these suggestions were those which were put forward by the Board of Governors in its May and June meetings, and again through the meetings in August, when, after the Soviets had made their report, a number of suggestions were put together by the International Safety Advisory Group, Advisor to the Director General; and then again, from the two meetings of

the general conference and the two meetings of the Board of Governors, which occurred in September.

All of the various ideas that were put together by member states and put forward by member states were compiled and looked at with an idea of finding out where priorities might best be placed in terms of actual safety efforts for the agency over the coming year and the succeeding years.

This will then be put forward, this recommendation from this group of experts will be put forward to a special meeting, again, of the Board of Governors, which will occur in December, next month, and the Board of Governors will then give specific instructions to the secretariat as to a program for 1987 and for guidance, for development of programs for 1988 and thereafter.

Mr. Chairman, there has been an understandable interest in safety following Chernobyl, but I would not for a moment want us to lose sight of the role that the agency plays in safeguards, as well. You mentioned those in your opening statement. I think that we need to keep our eye on that very, very important aspect of the agency's role.

In my recent statement before the U.N. General Assembly, I said that the safeguards program provides the underpinning, the necessary underpinning for broad cooperation in the peaceful uses of nuclear energy to the benefit of the world. I think that is the message. It is essential if there is to be a continued development of the peaceful uses of nuclear energy.

Mr. Chairman, with your permission, I would like to submit for the record a copy of the statement [1] which Director General Blix made before the U.N. General Assembly last week in which he reported fully on the agency's activities in the past year and took careful note or a special note of all of the special activities arriving out of the new set of programs.[1]

With that, I would offer, if I may, to include my brief statement in support of the Director General's statement, which was also made to the General Assembly.

Senator COCHRAN. We appreciate having that, Mr. Ambassador, and it will be included, along with your statement, in the record.[2]

Ambassador KENNEDY. Thank you, sir. The United States, Mr. Chairman, has been particularly gratified that the agency has continued to strengthen the safeguards program, and I can assure you that the safeguards program and the technical cooperation programs of the agency are not going to suffer as a result of the new emphasis which is being given to nuclear safety. These things are going to move ahead, as they properly should.

The extensive training of IAEA inspectors in the United States and elswhere in the most modern techniques for measuring nuclear material in the safeguards is an example of the kind of contribution which the United States is making to enhance the capability of the agency in the safeguards field.

Nor should we, as I suggest, lose sight of the agency's most important technical cooperation program. It provides to developing countries valuable assistance in the peaceful uses of nuclear

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[1] See p. 44.

[2] See p. 33 for Ambassador Kennedy's prepared statement and p. 39 for the statement in support of Mr. Blix's statement.

energy. All of these programs and efforts, Mr. Chairman, obviously, cost money, and in these days, that is always a subject.

I am not here to plead; I am simply here to note, with some satisfaction on behalf of the United States, that the agency has been blessed with first-rate management over the years, and it has conducted its affairs over those years effectively and efficiently.

For the past 3 years, for example, it has been operating under a zero real growth budget despite ever-increasing demands from member states for programs and services. In these times, when international institutions are subject to considerable criticism, Mr. Chairman, this agency, the IAEA, clearly deserves commendation as a model for international organization operations. It has a clearly defined and important mission; it carries it out in the way that assures that resources are used in the most effective and best possible way.

Finally, Mr. Chairman, I am also pleased to be able to say that there is a tendency, in our view, away from the disturbing events of the recent past in which there has been so much extraneous political debate which has occurred in the annual meeting of the general conference and sessions of the Board of Governors.

We believe very positively that it is incumbent upon all of the member states to assure that the agency not be distracted from its vital technical missions. Moreover, we believe that the agency must continue to guide the international institution in which all states can join together to promote the peaceful uses of nuclear energy. Thus, obviously, Mr. Chairman, we strongly believe that universality of membership must continue to be a guiding principle for the agency.

Mr. Chairman, for over 30 years now the IAEA has effectively discharged its vital role as the key instrument in the global effort to prevent further spread of nuclear weapons. It has served effectively as the focal point for international cooperation in promoting the peaceful uses of nuclear energy. In looking to the future, it is clear that the IAEA will remain the international institution in which all states can join together to promote the peaceful and safe uses of nuclear energy.

Again, Mr. Chairman, I appreciate the opportunity to appear before the subcommittee and to express some views on the agency's programs and its future. Thank you, Mr. Chairman.

Senator COCHRAN. Thank you, Ambassador Kennedy, for your helpful testimony.

From your perspective as our Government's representative to the IAEA, is there enough being done by the international community to help ensure that there will not be a repeat of the Chernobyl accident?

Ambassador KENNEDY. Mr. Chairman, I think the international community has come together in a truly remarkable way, rapidly or effectively, to look hard at the causes of the Chernobyl accident, and I would add my view to that which has been expressed so eloquently by Secretary Herrington: The kind of accident which occurred at Chernobyl will not, cannot occur in reactors operating in the United States. The operating characteristics are very, very different, indeed.

But one always learns from events of this kind. No matter what specific cautions, one learns from events of this kind and puts them to work in an engineering and a development sense. That is occurring. Moreover, there is a very great effort being made to improve the understanding of radiological protection systems and techniques and the reporting of information which is associated with the proposed protection systems.

So I believe, Mr. Chairman, there could always be more done, but a great deal is being done now.

Senator COCHRAN. We were talking about the construction in Cuba by the Soviet Union and the Cubans of some nuclear reactors for production of electricity there. As we know, there are nuclear reactors in Mexico, there are some in Canada, and of course, throughout the United States there are nuclear reactors.

Do you think there is enough being done to help assure the American people that reactors that are located outside the United States as well as inside of the United States are constructed and are being operated with the requisite safety standards that would ensure against Chernobyl-type accidents?

Ambassador KENNEDY. Senator, whether for the American people there has been enough done to reassure them is a question I would want to defer on. I think more can be done, should be done, to assure the American people that, indeed, our own reactors are safe, are being operated safely under the guidance and supervision of the Nuclear Regulatory Commission and the strenuous efforts of the industry itself.

In respect to our neighbors, certainly Canada and Mexico, Canada is in the forefront of nuclear safety efforts, has alway been. I would daresay that their safety standards are very high, indeed.

As to Mexico, it is my understanding that the reactors being developed there are developed in accordance essentially with the standards that we ourselves apply; the agency has given a good deal of assistance and advice to the Mexicans as has the United States, and indeed, the agency's guidelines, the use of the so-called standards are, in fact, among those being applied by Mexico.

As to Cuba, as Secretary Herrington has noted, we have urged that the Soviet Union and the Government of Cuba—after all, these are Cuban reactors—provide the kind of information which we, in our own case, always put in the public realm concerning the devlopment of the safe operation of the powerplants.

We have indicated to the Government of Cuba, through the normal contacts which we have through our intersection, that we are prepared to make further information available which is in the public domain concerning the reactors in the vicinity of Cuba which are based in the United States. We expect them to do the same vis-a-vis the reactors in Cuba.

I would add that the reactors being built in Cuba under the Soviet guidance, direction, and perhaps with the direct participation, these are of Soviet design, but they are not of the design which involved the reactors at Chernobyl. It is a completely different system altogether.

Senator COCHRAN. We were told at a hearing that this committee held in Miami several months ago on the subject of the Cienfuegos reactors that, if those reactors were being constructed in the

United States, they would not be licensed by the Nuclear Regulatory Commission because they failed to include design standards and safety standards that we require of nuclear reactors that are constructed in the United States.

Given that information and that testimony, what effort, if any, can we make as a government to ensure that the requisite safety standards and the design standards and the operational performance be met in connection with the construction and operation of those reactors in Cuba?

Ambassador KENNEDY. We must, of course, do everything possible, and everything possible, I believe, in terms of being compliant. We have made absolutely clear to both the Soviet Union and the Cuban officials that we expect that the highest possible safety standards will, in fact, be applied in order that there will be the lowest of likelihoods of any transnational, transboundary release effects or, indeed, any kind of safety concerns in those reactors.

As a first step, we must know something more about exactly what is being constructed and under what standards and conditions. We don't know enough, and we have, as I said, requested both the Soviet Union and the Cuban authorities to make that information available from which we could certainly make suggestions as we will, indeed, through the IAEA.

We are urging that the IAEA become more involved by way of safety suggestions to the Cubans.

Senator COCHRAN. I know that the IAEA provides operational safety review teams to countries which request them to visit and observe or monitor the operation of nuclear reactors for safety purposes and that those teams have been invited to Mexico and that they have been invited to other countries around the world, and there may be an increase in the demand and the requests that IAEA receives for this kind of activity.

If that is true, what is that going to do to the ability of the agency to discharge its other responsibilities such as ensuring compliance with safeguards that are designed to prevent the diversion of nuclear fuels for weapons production and the other peaceful uses of nuclear energy that are the subject of work and the agenda of the IAEA?

Is there going to be enough money? Is the budget capable of sustaining these new demands without sacrificing some other areas of activity?

Ambassador KENNEDY. Mr. Chairman, that is a vital point which you have made. As I suggest in my statement, it is absolutely essential that we not allow the expanded program in the safety area to encroach upon and detract from those other vital programs of the agency which have been administered so well for so long.

Thus far, we do not think that is the case, and it is the Board's intention to be sure that it is not the case.

As to money, I think I suggested that the agency has been extremely well managed. If there was water, as we say, in that budget, it has been squeezed out. It is essentially a dry sponge at this point; it is extremely tightly managed and well managed; indeed, I would say if not the model, certainly, a model for how such institutions should be managed in respects to the utilization of its resources.

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We are getting $1.25 worth of effort out of every dollar that is being put in, in my judgment. The zero growth posture which has been sitting there, now, as I said, for 3 years is obviously something that is going to have to be looked at, but that is going to have to be looked at against the total ability of all of the member states to increase contributions, and that is the question which faces all of us.

Senator COCHRAN. What do you think the chances are that the Soviet Union will permit visits by operational safety review teams?

Ambassador KENNEDY. I could not speak to that.

Senator COCHRAN. Has that been discussed in any of the meetings and conferences which you attended? Was that the subject of any of those discussions?

Ambassador KENNEDY. It has been discussed. I do not know whether the Soviets have, in fact, reached a conclusion at this point.

Senator COCHRAN. What about the United States? Will we permit visits by the safety teams?

Ambassador KENNEDY. The United States has been considering this since, I noted from Secretary Herrington's remarks. It is contemplated, and, in fact, there will be a request for such a visit. The details need to be worked out, but we passed that word on to the Director General that we would contemplate that there would be such a request in the upcoming months.

Senator COCHRAN. Do you think it is possible to develop and implement international safety standards that are binding on the international community in the nuclear safety area?

Ambassador KENNEDY. Senator, I think one needs to find what is meant by such standards. It one is talking about the varied details, standards that are the hallmark of our own safety system in the United States administered by the Commission under the conference's guidance, I doubt it, for the reason that these are extremely complicated; they relate to such a variety of conditions and circumstances. They pertain in so many cases to specific situations which would not be repeated one country to another.

Moreover, certainly in our own case, we would want nothing less than if we were looking for a binding set of standards, we would certainly want nothing less than our own standards, but that would be very complicated in some circumstances, as I suggest. They would be perhaps unappropriate for other circumstances, other standards being used in other countries, less important or contingent.

So I think what we can see and what is being looked at very hard is whether a set of basic principles of an engineering concept and safety concepts can't be developed and which could be established, perhaps, as mandatory and agreed that all safety standards would be developed, taking into account those basic principles and satisfying those basic principles. That is possible, I believe, and that is the kind of thing that is, in fact, being looked at.

Senator COCHRAN. It occurs to me that if there were to be developed an arrangement or agreement or convention, call it what you will, among the nations which are capable of supplying materials, hardware, equipment, for the construction and operation of nuclear powerplants which was based upon an understanding that no nation, no prospective purchaser could obtain such materials

unless it agreed to permit inspections and to ensure compliance with some minimum standards that that may be one way to get at the issue.

I don't think the international community is going to sit back and just trust the Soviet Union or suppliers of equipment and material to be the entity that decides that this prospective purchaser is competent to construct and operate a nuclear facility in such a way that it would lessen the likelihood that there be any kind of nuclear accident.

There is some concern that in developing countries around the world where we are seeing an increase in reliance on nuclear power that there may not be the technical expertise available in those countries for the construction or operation of nuclear plants. So this is a legitimate concern, I think, that exists today, and Chernobyl emphasized, for all of us, that an accident anywhere in the world could be very detrimental to people who live in other parts of the world.

I really think that there is an urgency to this matter of international nuclear safety and that we have got to use our influence in the international community through the International Atomic Energy Agency, which I think we all agree may be the best international agency for this purpose, to develop and implement and agree upon an international set of standards so that those who are dealing in the sale of equipment and who are assisting in the operation of nuclear powerplants understand that they are responsible.

I also think that as a necessary part of this, there has to be some agreement as to reliability and compensation for damages that occur in the international community.

What, in your judgment, is the likelihood of there being developed some compensation, liability agreement, that the international community can support and can help enforce?

Ambassador KENNEDY. There are a series of conventions which touch upon that question. They are being reexamined in an effort to see if there could not be a more comprehensive program which could be agreed upon by all states, and that is being seriously looked at right now. The agency, along with poeple from the Nuclear Energy Agency and European communities, for example, are reviewing that question even now, Mr. Chairman.

Senator COCHRAN. When I had a chance to visit Vienna as an observer to the post-Chernobyl accident review conference, I was impressed with the statistics that we were given at that time about the number of nuclear reactors that are in operation in the world today and then looking ahead 10 years or so, the number that will be in operation later on, by the year 2000.

As I recall, the number could be over 500 in terms of nuclear powerplants in operation, nuclear reactors in operation. If that trend does continue, then I think it is all the more reason for us to move quickly now to explore possibilities and lay the groundwork for agreements that everybody understands are very serious and which also provide for mandatory inspections, onsite, to help reassure the citizens around the world that there are safety standards in place and somebody is monitoring the compliance with these standards.

I think a great deal of confidence has been developed in the International Atomic Energy Agency in the area of nonproliferation, the diversion of fuels to weapons production. I think it is because of that track record and the willingness of the superpowers to rely upon the expertise and to cooperate in this agency that it is the natural agency in the international community to deal with this issue of international nuclear safety.

While I am encouraged about the fact that these two conventions which you have discussed and which Secretary Herrington described have been reached and have been signed, one dealing with prompt notification of the international community of an accident, and the second dealing with providing assistance to member States in the event of a nuclear accident, I think we need to go further than that, and I think we need to act rather expeditiously to help deal with the other problems: liability, compensation, onsite inspections, and all the rest which are a part of this challenge.

And there are problems; there are budget problems. There are some who think that we don't need minimum standards; we need maximum standards, too; that minimum standards aren't really enough. What is your reaction to that?

Ambassador KENNEDY. We would not think they were enough, Senator; that is exactly the point. They need to be the highest, and our own standards are certainly as high as exist anywhere in the world, and we continually tighten them. We would expect that that is what is needed.

I think, Senator, if I may comment on something you have said, as to suppliers, here I think certainly, the principal suppliers in the West that are European friends or the Japanese, ourselves, these, and indeed, some of those even in so-called developing countries which, in some cases, are, in fact, doing some supplying, standards are very high, indeed.

They do not, as a general proposition, I think it is fair to say, none of them would export to a developing country systems which would not be considered safe in their own countries. That just isn't done. The material that is exported is built to the same standards as material used in reactors in their own countries, and the designs are essentially the same.

So that there is a lot of that recognition, clear recognition of the point you so correctly made. It is true that an accident some place is an accident any place and everywhere, and nuclear suppliers are as acutely aware of that as anyone else and recognize that an accident in a developing country involving a reactor which a good country may have produced, manufactured and designed, would not be very helpful to go into programming. Everybody recognizes that.

That is a kind of an inherent drive toward safety standards. It is not a substitute for an agreed level, I recognize that and agree with that, but there is that inherent drive which may make it possible to arrive at an agreed high safety standard internationally.

Senator COCHRAN. You mentioned meetings that were scheduled to be held later on this year, December, I think you mentioned; a Board of Governors meeting is coming up. What do you expect will be the subject of discussions at that meeting, and will we have an

opportunity to get a report from you or others about continuing progress in these areas?

Ambassador KENNEDY. The board meeting in December has, for its purpose, a final determination by the Board and guidance by the seretariat of the agency on the enhanced and broadened safety program for the coming year. Some over $2 million, not a great deal, but that is $2 million in addition to what was already there, which probably doubles the amount of moneys actually being totaled to direct expenditures in the safety program for the coming year has already been allocated by the Board, and the Board has asked that the agency, the secretariat refine the specific program elements that will be accomplished with that money in the coming year and that a long-term program over the next 2 or 3 years, that is, 1988 and on, be developed and presented to the Board for its consideration.

As I mentioned, the meeting which occurred just last week in Vienna which reviewed this large number of safety program suggestions was for the purpose of these experts. The purpose was to try to put them in some kind of priority framework as the experts saw it in order that the Board could take a look at all of the suggestions and say which ones the secretariat, the agency, should focus on for the next year and the 2 years thereafter.

That is the purpose of the meeting in December. It will set the programming, and hopefully, discern from whence the resources will actually come to meet the program needs for the next 2 or 3 years.

Senator COCHRAN. Mr. Ambassador, we appreciate your being here and helping us understand what the impact of some of the recent actions of the International Atomic Energy Agency will be and what we can look forward to in the future in the area of international safety and the effort that we want to make to develop an international consciousness that helps ensure that there won't be another Chernobyl, and that the people of the United States are protected to the greatest extent possible from any kind of international nuclear accident.

Thank you very much for being here. This concludes the hearing.

Ambassador KENNEDY. Thank you, Senator.

[Whereupon, at 11:30 a.m., the subcommittee was recessed, subject to the call of the Chair.]

ADDITIONAL MATERIAL SUBMITTED FOR THE RECORD

STATEMENT OF

JOHN S. HERRINGTON

SECRETARY OF ENERGY

BEFORE THE

SUBCOMMITTEE ON ENERGY, NUCLEAR PROLIFERATION

AND GOVERNMENT PROCESSES

COMMITTEE ON GOVERNMENTAL AFFAIRS

UNITED STATES SENATE

NOVEMBER 18, 1986

Introduction

Thank you, Mr. Chairman. It is a pleasure for me to appear today to discuss with the Members of the Subcommittee the events that took place in Vienna during the Special Session and the Regular General Conference of the International Atomic Energy Agency (IAEA).

Mr. Chairman, let me first put these events in perspective.

We are convinced that we can and should continue to utilize nuclear power as a viable -- indeed, a critical -- option for electricity generation, and that we can continue to do so in a safe, reliable and effective manner. There is clearly a significant role for nuclear power in meeting the world's current and future energy needs -- and those needs are growing.

While we have serious concerns to address with regard to nuclear safety in certain parts of the world, the issue is not whether we can live with nuclear power, it is how we can continue to assure the safety of nuclear power installations. There can be no doubt that we need nuclear power and that it must continue as a key component for ensuring world energy security. Commercial nuclear power is an integral part of the world's energy mix, and there is no legitimate reason to abandon it as an energy option.

It is imperative that we continue to give priority attention to ensuring that our reactors are operated prudently and in conformance with high safety standards.

The Department of Energy, the Nuclear Regulatory Commission and the U.S. nuclear industry agree that the issue of nuclear safety is paramount in the design and operation of nuclear power plants.

Let me note at the outset that commercial nuclear power plants in the U.S. are not susceptible to accidents similar to that at Chernobyl, and the design of nuclear power stations in the U.S., and most of the free world for that matter, is fundamentally different from that of Soviet plants.

The first line of responsibility for ensuring the safe operation of our reactors has always rested with the organizations that build and run them. Industry recognizes this responsibility and has instituted increased safety measures and advanced training and set up organizations such as the Nuclear Safety Analysis Center under the Electric Power Research Institute (EPRI) and the Institute of Nuclear Power Operations (INPO).

Even with these measures, industry believes it can do more. Last year, utilities commissioned a special study on operational performance. As a result, utilities have embarked on an aggressive program of self-evaluation aimed at achieving excellence at all of our nuclear power stations. I commend these actions by our industry.

The NRC role in licensing and oversight of operational safety is a strong and important one. Chairman Zech intends to emphasize vigorously self-discipline and excellence in plant operation, while improving cooperative activities with other countries in the nuclear safety area.

While each country carries an enormous and important public trust to meet the responsibility of ensuring a safe program nationally, the Chernobyl accident has underscored just how closely the world's energy fortunes and fates are linked.

Chernobyl was an unnecessary tragedy with social and economic repercussions to be felt for generations. This accident caused loss of life, devastating economic losses particularly in the Soviet Union, but also in Western Europe and Eastern Europe, and fear among many in the affected areas of the long-term consequences of radiation exposure.

The sequence of events which led to an international response to Chernobyl firmly underscores the seriousness which world leaders attach to the safe and reliable operation of nuclear power plants.

The first major international event following Chernobyl was the Economic Summit in Toyko, which took place within days of the accident. The President and the U.S. Delegation in Tokyo were the driving force behind the positive statement issued by the Summit leaders, which said in part:

> We welcome and encourage the work of the IAEA in seeking to improve international cooperation in the safety of nuclear installations, the handling of nuclear accidents and their consequences, and the provision of mutual emergency assistance.
>
> Moving forward from the relevant IAEA guidelines, we urge the early elaboration of an international convention committing the parties to report and exchange information in the event of nuclear emergencies or accidents.

Following the Summit, several important events took place for which the IAEA can be given credit. The Agency's efforts included holding a special Board of Governors meeting in May, negotiating the two international conventions over the course of the summer, hosting the post-accident review meeting in August, all of which culminated in the Special Session.

Special Session of the Regular General Conference

The U.S. Delegation in Vienna had three major objectives for the Special Session. We wanted to approve the two new conventions, engage in a dialogue with the Soviets on nuclear safety and consider the expanded IAEA safety program. It is for these reasons that I agreed to lead the U.S. Delegation to the Special Session of the Regular General Conference of the IAEA. I am pleased to say that the outcome of the Special Session is extremely positive and fully served U.S. interests.

Conventions

In an unprecedented four-week period, the representatives of the IAEA member states prepared two international conventions for signature. The first of these is the convention on early notification of a nuclear accident with potential transboundary effects. The second is the convention on assistance in the case of a nuclear accident or radiological emergency.

I am pleased to report that I had the opportunity in Vienna to sign these historic international conventions on behalf of the United States. To stress the support of the Administration for these conventions, in my address to the delegates I stated that not only would the U.S. adhere to Article 1 of the notification convention, but would voluntarily provide notification of any other nuclear accident which has or may have transboundary effects of radiological safety significance.

Soviet Disclosures

During the Special Session the delegates discussed the results of the IAEA-sponsored meeting in August at which the causes and findings of the Chernobyl accident were aired. While the Soviets were somewhat more open at the August meeting, they continued to state that the cause of the accident was "human error" in the conduct of unauthorized experiments. They did concede that their RBMK reactor design at Chernobyl was flawed in that it did not provide back-up protection against such human error.

Human error and the flawed design resulted in the destruction of the reactor, subsequent fires, and the uncontrolled release of radiation into the atomosphere which was carried over several countries.

Let me restate here for emphasis that nuclear plants in the western world are not susceptible to accidents similar to the Chernobyl accident.

Although the Soviets provided considerable information during the meeting in August, there are still unanswered questions. In bilateral discussions I held in Vienna with the leadership of the Soviet Delegation, the USSR representative indicated that Soviet officials would provide answers to questions regarding containment, training and instrumentation design. He also agreed to provide data on the Soviet-made nuclear plants now under construction in Cuba.

Nuclear Safety

Nuclear safety is paramount in the reliable operation of nuclear power plants anywhere in the world. While the safety techniques used in the generation of electricity from nuclear power may vary, there is a concomitant international responsibility in the safe operation of nuclear power plants.

In my remarks to the delegates in the plenary session, I reiterated that the U.S. places immense importance on safety. I explained that under the guidance of Chairman Zech, I believe that the NRC will ensure that uses of nuclear materials in the U.S. -- as in the operation of nuclear power plants or medical, industrial or research applications -- are carried out with proper regard for the public health and safety, of the environment, and of national security; for the safeguarding of nuclear materials from theft and sabotage; and for safe transport and disposal of nuclear materials and wastes, and the effects on our neighbors.

The IAEA promotes the importance of nuclear safety. This is evident in the expanded nuclear safety program, the experts meeting held earlier this month, and the special Board of Governors meeting in December at which priorities will be determined for the IAEA expanded nuclear safety program.

Perspective on International Nuclear Safety Cooperation

As a result of participating in this historic Special Session, I believe there are five steps of importance to the international community and to the United States as a world leader.

First, the adoption of the convention on early notification of a nuclear accident is important. I am pleased to report that I was able to sign this convention in Vienna on behalf of the United States. The objectives and the commitments incorporated into this notification convention are entirely consistent with longstanding U.S. policy. Thus, while this convention does not require changes in our policy nationally, we consider it to be a major step for the international community. Should any other significant nuclear accident occur in the future, this convention will reinforce the ability of states to deal with the transboundary radiological consequences of a significant nuclear accident.

Second, the adoption of the convention on emergency assistance is an equally important step. This convention affirms the safety role of the IAEA consistent with its Statute, and should greatly enhance the ability of states to assist each other should a nuclear accident or radiological emergency occur. I believe our willingness to offer assistance was shown in the days following Chernobyl.

It is interesting to note that both of these conventions are the culmination of an idea first proposed by the U.S. some years ago.

Third, it is imperative that we expand U.S. programs of multilateral and bilateral cooperation in the areas of reactor safety and radiological protection. This, too, is an area where the IAEA already has achieved an impressive record and can do more. The delegates at the Special Session agreed to an expanded role for the IAEA in these critical areas. The expanded program was approved at the Regular General Conference. The Board of Governors is to determine priorities within the program, and it will hold a special meeting in December for this purpose. The Board will consider recommendations of the experts group that met earlier this month.

Fourth, we need to learn everything possible from Chernobyl. Technical details have been discussed, and I believe the meeting in August, convened by the IAEA, was very helpful in identifying the problems. But the technical issues involved still merit further analysis. Although the Soviets did provide considerable information on the Chernobyl accident over the summer and at the IAEA-sponsored meeting in August, additional questions were raised at the post-accident meeting that still need to be answered. The Soviet Union has indicated that it will provide answers to questions such as the design of instrumentation, training and containment. In discussions I had with the leaders of the Soviet Delegation in Vienna, they also agreed to provide us with data on the plant they are building in Cuba.

Finally, it is important for the U.S. and every nation to begin a new era of multilateral and bilateral cooperation in the peaceful uses of nuclear energy where our common interests dictate. I am proud of the U.S. record on cooperation with other countries in the peaceful uses of nuclear energy. We are seeking to expand this tradition.

The events at Chernobyl have made it abundantly clear that the safe use of nuclear energy is not, and cannot be, solely a national concern. It is an international concern, and it is essential that, as a world community, countries meet the challenges of the safe use of nuclear power individually and collectively. At the Special Session in Vienna, I believe the delegates and the IAEA renewed their commitment to the principles of nuclear safety and the means of achieving even greater strides in this area.

The Regular General Conference

Mr. Chairman, during the week following the Special Session, IAEA member states participated in the 30th Regular General Conference.

I believe that the excellent spirit and momentum generated by the Special Session was instrumental in the positive outcome of the Regular Session. Most noteworthy is that all efforts to limit Israel's membership rights and privileges were defeated.

The Regular General Conference also approved a modest expansion of the IAEA budget for 1987, which provides for additional funds for the nuclear safety-related program. This program will constitute a start -- but only a start -- of a more active and aggressive IAEA program of nuclear safety. Key elements of the expanded program are:

- greater use of operational safety review teams to advise countries on improved safety practices;
- more attention to radiation protection programs in all areas of nuclear energy;
- review, and if necessary, revision of IAEA nuclear safety guidelines; and
- additional research activities.

But we believe that in the years to come the IAEA, with adequate support from its members, can do even more to enhance worldwide nuclear safety. Although each country bears the ultimate responsibility for safety of its installations, I believe that the IAEA can continue to play an important role in encouraging nations to take an even greater interest in safety:

- IAEA member states can make greater use of safety advice and assistance provided by the IAEA;

- they should not object to releasing the important results of safety reviews to neighboring states (an important confidence-building measure);

- they should offer to the IAEA greater assistance in creating a network of resources to be available to member states in the event of a future nuclear accident; and

- they should be willing to adhere to safety principles developed by the IAEA.

There is much that remains to be done to build upon the outstanding progress that has been made since Chernobyl to create a stronger regime of international nuclear safety.

TESTIMONY OF

THE HONORABLE RICHARD T. KENNEDY

AMBASSADOR-AT-LARGE

BEFORE THE

COMMITTEE ON GOVERNMENTAL AFFAIRS

SUBCOMMITTEE ON ENERGY, NUCLEAR PROLIFERATION, AND

GOVERNMENTAL PROCESSES

UNITED STATES SENATE

November 18, 1986

Thank you, Mr. Chairman. It is again a pleasure to appear before your Committee to discuss the meetings and activities of the International Atomic Energy Agency (IAEA). As a member of the Board, I want to reiterate my appreciation for your interest and support of this important organization.

Since I last testified before this Committee on the activities of the IAEA, there have been a number of significant events. These include the post-accident experts meeting on Chernobyl in August, a Special Ministerial-level General Conference, the regular General Conference, meetings of the Board of Governors and a recent technical experts meeting on safety. These meetings were successful and in every case achieved the objectives sought. The achievements of the Agency over the past few months demonstrated that it is an effective force in the international nuclear non-proliferation and nuclear safety areas.

The results of the meetings in September are particularly noteworthy. As Secretary Herrington noted, the two international conventions were signed during the special session of the General Conference. These conventions provide for early notification and for emergency assistance in the unfortunate event of a nuclear accident with potentially significant transboundary effects. I want to reemphasize that these conventions are not only important for their practical application but also for the fact that they emerged from a spirit of compromise and cooperation, all too rare in

multilateral fora. This spirit of cooperation has characterized all the meetings that have occurred.

Nuclear safety has of course received considerable attention since Chernobyl. The IAEA has played an important role in the area of safety for over a decade, but its importance has been underscored since the nuclear accident in the Soviet Union in April. Of particular interest is the Operational Safety Review Team (OSART) program of the Agency. This program, which is three years old, provides assistance to both developing and more advanced countries by giving an individual member state a comprehensive review of a nuclear facility and recommendations for the safe operation of the facility. Additionally, qualified personnel from developing countries are included on reviewing teams and are thus afforded valuable training in conducting such safety reviews. These OSART visits are undertaken only at the request of IAEA members and the Agency's role is purely advisory. Currently five or six visits are made annually, but it is expected that the number will increase to around twelve per year. There is strong support among members states for expansion of the OSART program.

The meeting this month in Vienna of nuclear safety experts considered an extensive list of suggested safety activities which the Agency might undertake. The experts meeting, proposed at the IAEA Special Board meeting in May and approved at the Regular June Board, was designed to establish priorities

for an expanded IAEA safety program in 1987 and beyond. At the experts meeting, the U.S. stressed that priority should be given to programs that would help minimize the prospect of nuclear accidents for the future and to programs dealing with radiological consequences and protection in the event of an accident.

In December, a Special Meeting of the Board of Governors will consider the recommendations from this experts meeting and is expected to arrive at a final package of activities for implementation over the next two years. The suggested priorities which the experts developed will be particularly helpful to the Board in its deliberations. The Board's objective will also be to assure the most effective and far-reaching program within the limits of available resources.

Mr. Chairman, though there has been an understandable emphasis on nuclear safety in recent months, the Agency's role in the safeguards area should not be overlooked. As I said in my recent statement before the U.N. General Assembly, the safeguards program provides the necessary underpinning for broad cooperation in the peaceful uses of nuclear energy for the benefit of all. The U.S. is particularly gratified that the Agency has continued to strengthen the safeguards program, developing new and more effective ways to increase international confidence, while at the same time keeping a watchful eye on the resources involved. One example of this strengthened program is the extensive training of IAEA

inspectors in the U.S. and elsewhere in the most modern techniques for measuring nuclear material under safeguards. Moreover, new instruments for measuring safeguarded material are being developed and will be made available to the Agency and its inspectors.

We must also not lose sight of the IAEA's important technical cooperation program which provides to developing countries valuable assistance in the peaceful uses of nuclear energy. For these countries, this assistance tends to focus heavily on nuclear medicine, food irradiation, and agricultural uses of radioisotopes. These activities make a significant contribution to the well-being of peoples throughout the world.

All of these programs and efforts cost money. I am pleased to note that the Agency has been blessed with first-rate management and, over the years, has conducted its affairs effectively and efficiently. For the past three years, it has operated under a zero real growth budget -- despite ever-increasing demands from member states for programs and services. In these times of criticism of international institutions, the IAEA clearly deserves commendation as a model international organization. The IAEA has a clearly defined important mission, which it carries out in a way that assures that resources are used in the best possible way.

Finally, I am pleased to be able to say that there is a trend away from the disturbing tendency to conduct extraneous

political debate in the annual meeting of the General Conference and sessions of the Board. We believe that it is incumbent on all of the IAEA's members to assure that the Agency not be distracted from its vital technical mission. Moreover, the IAEA must continue to be the guiding international institution in which all states can join together to promote the peaceful uses of nuclear energy. Thus, universality of membership must also continue to be a guiding principle for the Agency.

Mr. Chairman, over the past 30 years the IAEA has effectively discharged its vital role as the key instrument in the global effort to prevent the further spread of nuclear weapons, and it has served effectively as the focal point for international cooperation in promoting the peaceful uses of nuclear energy. Looking to the future, it is clear that the IAEA will remain an international institution in which all states can join together to promote effectively the peaceful and safe uses of nuclear energy.

Again, I appreciate the opportunity to appear before your committee today.

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Delivered by Ambassador Kennedy
at the UNGA on November 11, 1986

Thank you, Mr. President.

As the United States Representative to the International Atomic Energy Agency, it is a great pleasure for me today to consider, with my distinguished colleagues, the Annual Report of the IAEA. I am particularly gratified for the opportunity to reaffirm my government's strong support for the important work of the IAEA, and to reflect briefly on its solid record of accomplishment in promoting the safe and peaceful uses of nuclear energy for the benefit of people throughout the world.

My government joins those who have commended the Director General for his excellent report and statement and for the Agency's work which it reflects. The IAEA -- its staff and its Member States -- can look with justifiable pride and satisfaction upon its ongoing safeguards and technical cooperation activities and its accomplishments in the field of nuclear safety.

Over the 30 years of its life, the IAEA has assumed ever greater importance as a key instrument in the global efforts to protect against the further proliferation of nuclear weapons, while assuring that the benefits of peaceful uses of nuclear energy are made widely available. It is an Agency which the United States ranks among the most important of the international institutions.

The vital international safeguards program which the IAEA administers provides the necessary confidence to states through-

out the world that nuclear energy is being used only in the intended peaceful ways. And, thus, the Agency's safeguards program provides the necessary underpinning for broad cooperation in the peaceful uses of nuclear energy for the benefit of all. My government is particularly gratified that the Agency has continued to strengthen its safeguards program, developing new and more effective ways to increase international confidence, while at the same time keeping a watchful eye on the resource commitments involved.

The Agency also is to be congratulated for its successful efforts to promote the widespread use of the peaceful atom. Its technical cooperation activities in nuclear energy, including nuclear medicine, in improvement of food and agriculture, contribute greatly to the well-being of peoples throughout the world.

The IAEA plays a leading role too, in efforts to assure that nuclear power is used in a way which fully protects the public health and safety. Earlier this year, following the tragic accident at Chernobyl, we were vividly reminded of the critical role of the IAEA in the field of nuclear safety. The rapid and effective response of the IAEA to that accident, and its subsequent efforts to address in a comprehensive manner its immediate and long-term consequences, amply reflect the initiative and seriousness of purpose which have, for so many years, distinguished the Agency's work.

My government wishes particularly to commend the IAEA for its support of the successful efforts by Member States to complete negotiations, within a period of weeks, on two international conventions regarding early notification and emergency assistance in the event of nuclear accidents. These conventions are significant not only for their practical application, but for the fact that they emerged from a spirit of compromise and cooperation, all too rare in multilateral fora.

This same constructive spirit was evidenced at the Post-Chernobyl experts meeting in August, and at the Special Session of the IAEA General Conference on nuclear safety in September. Each of these meetings resulted in a thoroughly constructive exchange of views, which doubtless will form the basis for the Agency's future activities in the nuclear safety area.

Mr. President, I have cited these recent initiatives by the Agency because they so clearly typify the manner in which the IAEA does it work year after year. In that light, 1985 -- on which the Director General has so well reported -- was no exception. While most of its activities are not featured on the front pages of the world's newspapers, and while most of its projects, courses and special programs receive little or no public attention, the Agency consistently approaches its work with dedication and competence. It seeks always to respond effectively to the diverse interests and needs of its Members.

At the same time, we must look to the future to assure that the IAEA remains an effective international institution -- one which maintains a clear focus on its technical mandate of safeguards, technical cooperation, and nuclear safety. In the past, the Agency on occasion has become embroiled in political controversies and issues extraneous to its statute and its mission. Such controversies unfortunately have occupied unnecessarily and undesirably the attention of its policy-making organs and governing bodies. We are pleased that there appears to be a trend away from such extraneous debate. It is incumbent on all of its members to assure that the Agency not be distracted from its vital technical missions.

My government also believes that the IAEA must continue to be the principal international institution in which all states can join together to promote the peaceful uses of nuclear energy. Thus, universality of membership must continue to be a guiding principle for the Agency. For otherwise, the goal of assuring that the peoples of the world can enjoy the greatest possible benefits of the safe and peaceful use of nuclear energy will be unattainable.

I have high confidence, Mr. President, that other Member States share our appreciation of the Agency and concur in the importance of its technical mission. I am certain that as the Agency approaches the year ahead -- a year which promises to be one of challenge and growth -- it will continue to uphold the

high standards of excellence it has established. I am equally certain, Mr. President, that the solid record of achievement which we have seen in this past year will be repeated in the next -- in no small measure, as a result of the outstanding leadership provided by Director General Hans Blix.

Before closing, Mr. President, please let me observe that my delegation has noted with interest the comments of some previous speakers concerning efforts to enhance nuclear arms control and to achieve the ultimate elimination of all nuclear weapons. My delegation would note that the United States, too, has put forward constructive, viable proposals directed toward these objectives. The United States, too, hopes that these proposals can be carefully considered by the Soviet Union as discussion of all proposals concerning nuclear weapons continues.

My government is, pleased, therefore to join with other states in supporting the resolution [No. L-32], on the IAEA Annual Report. We look forward to working with the Agency staff and with other Member States in support of the Agency's programs, which so clearly benefit us all.

Thank you, Mr. President.

STATEMENT TO THE FORTY-FIRST SESSION OF THE

UNITED NATIONS GENERAL ASSEMBLY

11 NOVEMBER 1986

HANS BLIX

DIRECTOR GENERAL OF THE INTERNATIONAL ATOMIC ENERGY AGENCY

86-45686

Mr. President,

The IAEA Annual Report for 1985 which is now before the General Assembly gives an account of the work of the Agency for that year. My statement initiating your discussion gives me an opportunity to underline some trends and activities, to review events which have taken place this year and are, therefore, not covered in the Report, and finally, to add personal reflections on the work of the Agency and on its role as a part of the United Nations system. This kind of introduction of the item on the agenda may be especially appropriate this year, when the Chernobyl accident has prompted important new activities and developments in the field of nuclear safety and raised public questions as to the role of nuclear power. I shall deal with the broader issues and their implications before touching on some of the detailed activities of the Agency.

Six months ago the nuclear industry was able to point to some 4000 power reactor years of operating experience without a single known fatal radiation accident, or major environmental contamination. This record was tragically interrupted by the accident in the number 4 power reactor at Chernobyl. The accident prompted comprehensive Soviet measures to stop radioactive releases, to give medical care and to protect and decontaminate the environment. The destroyed reactor is now encased and two undamaged units are again, after some technical modifications, in operation. Other countries in Europe took a variety of protective measures and a series of actions was initiated at the IAEA.

Shortly after the accident, the Soviet Union invited me and two of my collaborators to Moscow and Kiev. Following an extensive briefing we discussed with the Soviet authorities the actions which could be taken within the IAEA to enable all to learn from the accident and to consider the national and international nuclear safety measures which should be adopted. In May and June, the IAEA Board of Governors decided on the actions that were to be undertaken immediately by the Agency.

Among these actions was the convocation in July and August of a governmental expert group at IAEA Headquarters to draft two international conventions on early notification of a nuclear accident and on assistance in the case of a nuclear accident or radiological emergency. Two consensus texts emerged from the four-week meeting and were adopted at a Special Session of the General Conference in September. The conventions have already been signed by some 60 States. The convention on early notification has, in fact, entered into force on 27 October 1986. Under this convention, the parties undertake to report immediately any nuclear accident which may result in a transboundary release of radiological safety significance. In the spirit of the Convention, the Soviet Union immediately notified the IAEA about the recent accident of its nuclear submarine in the Atlantic. Under the convention on assistance, the parties undertake to facilitate prompt assistance in the event of a nuclear accident or radiological emergency in order to minimize the consequences and to protect life, property and the environment.

Another action was a Post-Accident Review meeting in Vienna in August with over 500 nuclear experts from all over the world participating. A comprehensive and frank report was presented by Soviet experts and was discussed in a detailed and open manner. Against the backdrop of an

an extensive media reporting which was not always accurate, it was of great value that this remarkable international expert analysis was able not only to explain the causes of the accident, but also to reach more precise conclusions concerning the real dimensions of the accident. Some thirty persons have died of radiation - not several thousand as was widely reported. Of major medical interest will be follow-up studies on the longer term health consequences of low-level radiation - if, indeed, there are any such consequences. The contamination caused by the accident will make a substantial area of land and forest around the plant uninhabitable for some time, perhaps for several years, but certain areas are already decontaminated. The health effects of the radiation which spread to other European countries appear not to be significant. However, contamination of land, in particular animal grazing areas, was significant in some regions, for instance in parts of Scandinavia. Many of the lessons learnt from the Chernobyl accident are specific to the RMBK type reactor and are being acted upon by the Soviet Union. Some lessons have a broader bearing, however. A consensus report summarizing the results of the expert meeting and adding recommendations for actions and programmes to strengthen nuclear safety was prepared by an international group of eminent nuclear safety experts (INSAG). As a result of that report, inter alia, a considerably expanded nuclear safety programme for the Agency is to be considered by the Board of Governors next month, and will commence in 1987.

The Special Session of the IAEA General Conference to which I referred earlier was convened in September with the sole purpose of considering measures to strengthen international co-operation in nuclear safety and radiological protection. The consensus reached by the Conference on certain basic policy questions was significant - namely

that nuclear power will continue to be an important source of energy for social and economic development; that each country is responsible for securing the highest level of safety; that there is scope for further international co-operation in nuclear safety, and that the IAEA has the central role in encouraging and facilitating such co-operation. For the Agency, this is a great challenge and the expanded safety programme has been worked out to meet it.

At this juncture, I should like to make some brief comments on the fundamental question which has been frequently heard this year, namely, whether nuclear power entails unacceptable risks. The first point to make in this regard, I think, is that many governments have already given a practical answer: today 15 per cent of the world's electricity is nuclear-generated. If this amount of electricity were to be generated by oil, it would take something like the entire 1982 Saudi Arabian oil production to achieve it. And were it to be generated by coal, it would require the annual coal production of the U.S. It has never been maintained that such a quantity of electricity can be generated without risk - whether by hydro, coal, oil, gas or nuclear - to mention those sources that can give significant new contributions to the world's supply of electricity.

In industrialized countries, the future choice of an energy source for electricity production will in most cases be limited to coal and nuclear. With coal, accidents in mines and transportation do take many lives, but the major anxiety is not about accidents. Rather it is about

the environmental consequences of the burning of huge quantities of coal. Through the emission of sulphur dioxide and nitrogen oxide, the burning of coal and other fossil fuels causes damage to forests and lakes, and the carbon dioxide which inevitably results from the combustion contributes to the risk of a rise in the temperature of the earth's atmosphere, the so-called "greenhouse effect." These harmful effects do not arise as a result of any accident, but through quite normal operations. As they are gradual processes, they do not attract our attention in the way a singular dramatic event, such as Chernobyl, does. Yet their collective impact on the sustainability of life on this planet is incomparably higher. I draw these conclusions from studies published by ECE, UNEP and WMO.

With nuclear power, the major anxiety lies with the risk of a large accident and with the radioactive waste that has to be isolated for a very long time. I think it is fair to say that, with the significant exception of Chernobyl, the risks of nuclear electricity generation to health and environment have remained precisely that - risks, while the daily and normal use of coal and oil to generate electricity have had the most serious environmental consequences. My conclusion is that nuclear power through fission is a reality we shall continue to live with. It will help our transition from the oil era to another energy era, perhaps solar power or fusion. No such new sources are around the corner, however, for the large-scale additional electricity generation which the world will need to help raise standards of living and promote development.

While it may be difficult for many to accept the conclusion that the continued and expanded use of nuclear power is needed until some other technology can provide large quantities of electricity at reasonable cost, no one will disagree with the conclusion that everything must be done to further improve nuclear safety and that this question has now acquired a much stronger international dimension. A radioactive cloud does not respect national boundaries; hence, the call for the establishment of an international nuclear safety régime ensuring a high degree of safety everywhere.

The question of binding and uniform nuclear safety norms is complex, because nuclear reactors differ from one type to another and also because siting conditions vary. Nevertheless, it should be seriously considered whether some basic common safety principles could not be established and whether there could not be a greater measure of voluntary acceptance and implementation of the IAEA's existing comprehensive nuclear safety standards. A preliminary discussion of the matter was undertaken just last week by a group of government experts meeting in Vienna.

While the question of the elaboration and adoption of some universally valid nuclear safety principles will require more intergovernmental reflection and consensus-building, a number of mechanisms which are already in existence within the Agency might be developed and used more extensively to foster nuclear safety and public confidence in it. They have one thing in common: they build on an openness that enables governments to learn from each others' experiences.

One such mechanism which may be more extensively used is the Operational Safety Review Teams (OSARTs). Under this programme, the Agency sends international teams of some 12-15 nuclear safety experts to review the operational safety of nuclear power plants at the request of national authorities. An OSART mission spends several weeks at the plant examining and exchanging information and eventually prepares a report for the inviting authority. We have had some three or four of these missions per year in the last few years. They differ, of course, significantly from safeguards inspections, which verify that peaceful nuclear installations are not used for military purposes, and have nothing to do with plant safety. In the case of safeguards, the State has legally accepted systematic inspection by the Agency. An OSART mission is invited by the State on an ad hoc basis. More and more authorities, governments and plant owners are finding it useful to hear the views of a highly competent, international team on the operational safety of their nuclear plants. The reports of OSART missions may indeed also help to create confidence in the public and between neighbouring States. We have already witnessed a spontaneous increase in the demand for OSARTs, and one can foresee arrangements under which they would develop from a sporadic ad hoc to a more regular activity.

The knowledge that both the Three Mile Island and the Chernobyl accidents were caused in large part by operator error has focussed attention and discussion on the broader question of the man/machine interface, and on the specific questions of design features to neutralize operator errors. As with any other technology, safety can always be

further improved. Constructors of nuclear reactors will continue to look for new technical devices which can offer good guarantees against off-site radioactive releases in case of accidents and continue to search for a next generation of highly standardized nuclear power plants with inherent safety features. Design activities will take place within the respective countries, but results may be facilitated or speeded up by an international exchange of ideas and experience.

International organizations are instruments for co-operation among Member States. In the nuclear field, these past few months have seen international co-operation at its best: governments determined to reach concrete results, willing to make mutual concessions to achieve them, and making full use of the organizations they have established. All this is especially encouraging at a time of crisis in multilateral diplomacy in general and in international institutions in particular.

On this last point, I should like to make a few comments, since the crisis at the United Nations has some direct consequences for working conditions in the IAEA.

The United Nations has been urged to streamline its administration and the recommendations of the Group of High-level Intergovernmental Experts can be seen as an input into that process. It would not be appropriate for me to comment on those recommendations, but I feel obliged to convey to the General Assembly my complete support for the general concern voiced by the Administrative Committee on Co-ordination (ACC) as regards the recommendations dealing with staff entitlements. As

ACC has pointed out, salaries for Professional and higher categories have remained unchanged for the past eleven years, subject to cost-of-living adjustments; those adjustments have been frozen for the last two years, while pension entitlements have been the object of successive reductions in the past four years.

The IAEA Professional staff, which in recent years has managed to administer an expanded programme despite a zero-growth budget, is naturally dismayed at being rewarded by an actual reduction in take-home pay over the last two years. I have received an increasing number of resignations of some of our most competent and long-serving staff, either because of the future impairment of pension rights or because of the uncertainty about entitlements and conditions. As a technical organization which relies partly on a rotation of highly competent staff, we see this as a disturbing trend that makes attracting such staff more difficult. I share the fear of ACC that "mediocrity will ultimately be the price of further reductions in staff entitlements." I trust that this is not the intention of either the Group of 18 or the General Assembly, whose wish instead is to revitalize the Organization. As the Secretary-General has stated, "to seek to solve the United Nations financial difficulties at the expense of staff entitlements would be extremely short-sighted and counter-productive."

Mr. President,

I shall now return to the main theme of this statement.

The high visibility of the Agency's activities in the field of nuclear safety this year should not lead to the erroneous conclusion that other areas of work have been de-emphasized. The Agency's entire programme has continued unabated and an approach has been maintained that seeks a balance between activities that are of interest and use to different member categories: industrialized countries and developing countries; countries with nuclear power and those without.

In the area of nuclear power and its fuel cycle, the global contribution of nuclear power units to total electricity generating capacity in the world increased last year by 14 per cent. Nuclear power presently provides between 40 and 70 per cent of the electricity in a growing number of countries or in large industrialized regions within countries. With better maintenance, management and attention to operator training, the performance of nuclear plants has improved in most countries. In Europe, for example, nuclear plants showed higher availabilities than their oil and coal-fired counterparts in all size categories.

We must note, on the other hand, that a variety of constraints work against the nuclear power option in many countries and these vary considerably. In some industrialized countries, public opposition, complicated regulatory procedures, high interest rates and policy uncertainties have acted as impediments. For developing countries the high initial capital investment is just one of the many hurdles that must be overcome. Following the requests that were made at the Third NPT Review Conference in 1985 and at the subsequent Agency General Conference, a senior expert group was established to advise the Agency on mechanisms to assist developing countries

in the promotion and financing of nuclear power programmes. In addition to investment capital, a number of other important constraints are likely to be found working against the introduction of nuclear power in the developing countries, e.g., inadequate supply of trained manpower, weak infrastructures, small electric grid sizes, and absence of adequate industrial support programmes.

Some of the constraints I have mentioned might be overcome if medium-sized reactors of simpler design with more inherent safety were available at competitive prices. Other constraints, e.g., relating to cadres, would require well-planned, long-term efforts to be overcome.

For several years now experts all over the world, basing their findings on detailed studies and designs, have been convinced that no scientific or technological breakthrough is needed to achieve safe high-level radioactive waste disposal. However, a significant sector of public opinion in several countries is still concerned about nuclear waste. Although the construction of high-level waste repositories, for good reasons, is not perceived by the nuclear community as a technologically urgent issue, demonstrated solutions to waste disposal are clearly essential for increasing the public acceptability of nuclear power in many countries.

As part of its extensive programme in the area of waste management, the Agency is planning in 1987 to initiate an inter-regional technical co-operation programme to advise developing countries on their long-term plans and strategies for the development and implementation of low- and

medium-level waste management systems. This is by far the major kind of waste in most developing countries.

I turn now to some of the other practical applications of nuclear technology and their contribution to development. Progress has been made in building up and improving radiotherapy services in developing countries for the treatment and control of cancer. Isotope techniques are also increasingly being used in studying the characteristics of groundwater resources so crucial to areas affected by desertification. A regional project in the Sahel area is planned for 1987 to help identify those areas receiving groundwater recharge and those which do not. In this way an IAEA project contributes to the broader efforts of the United Nations system to assist those African countries affected by drought to clarify the processes at work and find ways to reverse them.

Radiation and radioisotope techniques are also being more frequently used to monitor, improve and protect the environment; to study pesticide and other chemical residues in soils and crops; to reduce unnecessary use of fertilizers; to monitor trace element pollutants; and to preserve food without resorting to chemicals. Industrial applications of radiation are also attracting increased interest. Examples are the decontamination of animal food and the use of accelerators for removing toxic gas from coal and oil-burning power plants. These are some of the down-to-earth and practical applications of nuclear technology to human health, environment and development that the IAEA is helping to promote.

On the subject of advanced scientific research, I am also happy to report that the International Centre for Theoretical Physics at Trieste, which is run jointly by UNESCO and the IAEA, is being more and more highly valued by scientists from all over the world. Its programme, which aims at fostering the growth of advanced studies and research capabilities in the developing world, has expanded rapidly. Nearly 3,000 physicists now visit the Centre annually to carry out research or take part in over 20 seminars, symposia or workshops organized each year. About 75 per cent of the man-months spent at the Centre are by scientists from developing countries.

Although the IAEA has operated for several years now on a zero-growth budget, its Technical Co-operation Programme has been a notable exception. In 1985, $36.1 million was available for the financing of technical co-operation activities. There is a consensus among the membership of the Agency that the Technical Assistance and Co-operation Fund, which is financed from voluntary contributions, be increased annually by 12 per cent for the next three years. This is an indication of the special importance attached to the programme by Member States.

Mr. President,

The General Assembly, through its First Committee, devotes a good deal of its time each year to disarmament-related issues. Verification, an issue on which many arms control agreements have stumbled, is now recognized by all as being a *sine qua non* for effective agreements. The IAEA's safeguards system has been repeatedly referred to in the Conference on Disarmament in Geneva as well as in other fora, as a unique experience

in international on-site verification which might serve as a model for the design of verification measures in future arms control agreements. That the experience of the Agency's safeguards system might be of relevance in arms control and disarmament contexts makes it even more important that the system function effectively and credibly, in reality as well as in perception. Conversely, should this first experiment in systematic international verification falter, it would be a setback for the prospects of nuclear arms control and nuclear disarmament.

The IAEA safeguards system is a service which the Agency provides to sovereign States to create confidence that they are complying with obligations they have assumed for the exclusively peaceful use of nuclear installations. There is no question of foreign intrusion or coercive infringement of state sovereignty. States enter into agreements to accept IAEA safeguards because they perceive them to be, like many other international obligations, in their own national interest. This confidence-building function of the safeguards system has great practical significance both globally and regionally. Without safeguards, moreover, there would be very little nuclear trade, because suppliers insist on a verification that what they sell will not contribute to a nuclear weapons capacity.

During 1985, nearly 2,000 inspections were carried out at over 500 nuclear facilities. As in previous years, no anomaly was detected which would indicate the diversion of safeguarded nuclear material for military purposes.

There is no doubt that the number of nuclear installations and the amount of nuclear material in the world will continue to increase, along with the knowledge and expertise to manufacture nuclear weapons. With determination and adequate resources, many States with a sufficiently well-developed industrial infrastructure would be able to manufacture them. Safeguards alone cannot prevent this, no matter how sophisticated they become. It is vital, therefore, that the rationale which originally led so many States to make treaty commitments renouncing nuclear weapons be maintained, and that conditions are created so that other States, too, will feel that the rationale applies to them. Such a prospect would be greatly enhanced by tangible progress in the field of nuclear disarmament and by the establishment of conditions of global and regional security and stability.

In June of this year, the Agency concluded a first full-scope safeguards agreement with a non-NPT party, Albania. Such a voluntary submission of all nuclear activities of a State to Agency safeguards is an option for a State that is not a party to the Non-Proliferation Treaty, but nevertheless wishes to submit all its nuclear activities to IAEA safeguards.

Following the decision of China last year to submit certain of its peaceful nuclear activities to Agency safeguards, an Agency team went to Beijing in August for preliminary discussions. A draft voluntary offer agreement is now being prepared by the Agency for further discussion during the first half of 1987. After conclusion of this agreement, the

Agency will be applying safeguards in all nuclear-weapon States - albeit on a modest scale.

The Third NPT Review Conference last year recommended the continued pursuit of the principle of universal application of IAEA safeguards to all peaceful nuclear activities in all States and recommended to this end further evaluation of the economic and practical possibility of extending the application of safeguards to additional civil facilities in nuclear-weapon States. While I can report that there has been some increased safeguards activity in nuclear-weapon States, I should also note that the increase has been very limited so far because of financial constraints.

On the question of safeguards in South Africa, I have, unfortunately, nothing positive to report. The situation with regard to the application of full-scope safeguards to all of South Africa's nuclear facilities has remained unchanged and no response has yet been received to my requests for the initiation of discussion on this issue. Furthermore, the Agency's negotiations with South Africa on the application of safeguards to its semi-commercial enrichment plant are at an impasse. Following my report on this question to the IAEA General Conference this year, a resolution was adopted which, inter alia, called upon all Member States which have not yet done so to halt all nuclear co-operation with South Africa, and requested the Agency's Board of Governors to consider recommending to the next session of the General Conference the suspension of South Africa from the exercise of the privileges and rights of membership in accordance with the Statute of the Agency, if by that time South Africa has not complied with the relevan

General Conference resolutions and conducted itself in accordance with the purposes and the principles of the Charter of the United Nations.

The question of Israel's nuclear capability was also included on the agenda of the General Conference this year. At the conclusion of the discussion, the Conference decided to adjourn the debate on this question and no resolution was adopted.

The question of protecting nuclear power stations against terrorist and other attacks has attracted some public attention. I may note in this regard that the Convention on the Physical Protection of Nuclear Materials, which has been concluded within the framework of the Agency, has already been ratified by 19 member States. Only two more ratifications are needed for that Convention to enter into force. I hope that they will come in the very near future. As you know, the question of an international agreement prohibiting military attacks on nuclear installations is still outstanding. The importance of reaching an agreement on this matter was rightly stressed by many States at the recent session of IAEA's General Conference. Absence of such agreement and fear of such attacks may well contribute to the concerns many people feel about the development of nuclear power.

I would like to conclude by recalling some of the lessons that we have learned this year and which we might do well to remember as we look to the future. First, if nuclear power and other applications of nuclear energy are to continue to be used to contribute to human well-being and prosperity, all scenarios which affect its safe and peaceful uses should

be scrutinized in a comprehensive manner. These scenarios include diversion of nuclear materials for military purposes, armed attacks against nuclear installations, nuclear terrorism and serious nuclear accidents. Effective measures on all these fronts are important to the world's use of atoms for peace. Second, international rules and regulations must not lag behind the leaps in scientific and technological advancement. It is gratifying that notification procedures for nuclear accidents with possible transboundary effects have now been adopted. However, it would be better to regulate our technological achievements in advance rather than on a post-mortem basis. Third, international organizations continue to perform an indispensable role in our turbulent world, despite criticisms directed against the United Nations and its system of organizations. Fourth, in the computer, space and nuclear age, co-operation among nations is an absolute necessity to reduce the risks of our modern technologies. Above all, this co-operation is required to avert the threat of the use of nuclear weapons. The international community must redouble its efforts to ensure non-proliferation, to cease the nuclear arms race and to work towards disarmament. The remarkable international solidarity and co-operation which we have witnessed in the wake of the Chernobyl accident is an example of how the world can draw together to try to ensure that technology will be used safely for the benefit of humankind.

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